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UNITED STATES PATENT APPLICATION FOR:

TOW MANAGEMENT SYSTEM

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5 (A) TITLE OF THE INVENTION

Tow Management System

10 (B) CROSS-REFERENCE TO RELATED APPLICATIONS.

The present application is related to the application entitled LAW ENFORCEMENT TOW SYSTEM filed on October 31, 2000, the disclosure of which is herein incorporated by reference.

15 (C) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.

Not applicable.

(D) REFERENCE TO A "MICROFICHE APPENDIX."

Not applicable.

20 (E) BACKGROUND OF THE INVENTION

(1) FIELD OF THE INVENTION.

The present invention relates generally to the tracking and dispatch industry and more particularly to a system for managing all the informational needs related to a motor vehicle tow.

(2) DESCRIPTION OF THE RELATED ART INCLUDING INFORMATION  
DISCLOSED UNDER 37 CFR 1.97 AND 37 CFR 1.98.

The vehicle tow process typically involves tedious and repetitive data collection and record keeping tasks. Typically, the person who requests a tow must obtain descriptive data  
5 on the vehicle being towed and communicate this data to a tow dispatcher. The tow dispatcher must then transcribe the data, determine the type of equipment necessary and subsequently dispatch a tow truck or other tow equipment to the scene. Typically the tow truck driver must also transcribe this data as well.

After the tow request is dispatched, additional record keeping is required. This record  
10 keeping entails tracking mileage, time spent on a tow, and the vehicle's destination which the dispatch may know in advance or may remain unknown until the tow equipment arrives on the scene. After the tow is completed, the vehicle typically will incur storage charges until it is released, or subsequently sold or scrapped.

Manual systems that are used for tow management record keeping require that the  
15 various records utilized in the tow process, for example the dispatch record and tow record be matched together. If a record is misplaced, the tower may lose revenue.

Software systems are available for tow management. However, these systems require  
a tower to purchase computer hardware with sufficient storage capacity for all the necessary records. The present systems do not store lien sale information or have the means or  
20 capability to link lien sale information to the original tow request. The present systems are based on older software technology which oftentimes are character based. Additionally, these software packages do not have integration capabilities with dispatch systems or other information systems not within the tower's domain.

Therefore, it is an object of the present invention to provide a software based system which minimizes a towers hardware investment. Another object of the present invention is to integrate lien sale data with the tow record. Yet another object of the present invention is to incorporate modern software technology such as JAVA for better performance and click and drag capabilities for ease of use. Still another object of the present invention is to provide a software based system which may be integrated with other dispatch and tracking systems utilizing a computer connection.

Additional objects, advantages and novel features of the invention will be set forth in part in the description which follows, and in part will become apparent to those skilled in the art upon examination of the following or may be learned by practice of the invention. The objects and advantages of the invention may be realized and attained by means of instrumentalities and combinations particularly pointed out in the appended claims.

#### (F) BRIEF SUMMARY OF THE INVENTION

In view of the aforementioned needs, the invention contemplates a software based system client-server system. The present invention contemplates utilizing an Application Service Provider ("ASP") connected to a plurality of towers. The ASP would provide a server comprising hardware, data storage space, and server software for storing and maintaining tow records. A computer connection would allow a tower utilizing software such as a web browser to connect to the ASP.

The present invention also contemplates the integration of lien sale data with tow records. The lien sale data would include dates when the lien sale started, when division of motor vehicle requests were sent and received, date when a lien notice was sent, the date the

clear date and the actual sale date. Additionally data pertaining to parties notified such as owner or lienholder is stored. Finally, sale data such as the sale price and party purchasing the vehicle are stored.

Another aspect of the present invention is the capability to integrate with other dispatch and tracking systems via the computer connection. This enables a tower's customers to utilize their own software and to communicate the tow request electronically, eliminating additional manual transcribing which is labor intensive and prone to error. This also enables a tower's customer to track a tow request. For example, an insurance company may desire to inspect a vehicle it had towed for hidden damage or track storage costs.

Additionally, the present invention is based on Java technology, giving the present invention superior performance characteristics over the prior art and features modern drag and drop capabilities which makes the present invention easier to use than the character based systems of the prior art.

Among those benefits and improvements that have been disclosed, other objects and advantages of this invention will become apparent from the following description taken in conjunction with the accompanying drawings. The drawings constitute a part of this specification and include exemplary embodiments of the present invention and illustrate various objects and features thereof.

(G) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

The drawings illustrate the best mode presently contemplated of carrying out the invention.

This the drawings:

FIG 1 is a block diagram illustrating the major components of the present invention;

FIG 2 is an example of the main call taking screen;

FIG 3 is a detailed view of the general section of the main call taking screen;

FIG 4 is a detailed view of the vehicle section of the main call taking screen;

FIG 5 is a detailed view of the location section of the main call taking screen;

FIG 6 is a detailed view of the destination section of the main call taking screen;

FIG 7 is a detailed view of the motor club section of the main call taking screen;

FIG 8 is a detailed view of the owner/interested parties section of the main call taking screen;

FIG 9 is a detailed view of an example of the lien sale screen;

FIG 10 is a detailed view of an example of the invoice screen;

FIG 11 is a detailed view of an example of the vehicle storage screen;

FIG 12 is a detailed view of an example of the police information screen;

FIG 13 is a detailed view of an example of the police hold screen;

FIG 14 is a detailed view of an example of the Times/Mileage screen;

FIG 15 is a detailed view of an example of the Search screen;

FIG 16 is a detailed view of an example of the Dispatch Worksheet screen;

FIG 17 is a detailed view of an example of a map for use with the present invention;

FIG 18 is a detailed view of an example of the customer information screen;

FIG 19 is a detailed view of an example of the employee information screen;

FIG 20 is a detailed view of an example of payment received screen;

FIG 21 is a detailed view of an example of the security configuration screen.

FIG 18 is a detailed view of an example of the customer information screen;

(H) DETAILED DESCRIPTION OF INVENTION

The present invention is directed to a software based system for information management of all aspects of tow operations. The system tracks tow requests, the servicing of the tow requests, and disposition of the towed vehicle.

5 The present invention enables a tower to contract with an Application Service Provider ("ASP") to minimize hardware costs. The ASP would provide all the necessary hardware, including data storage, server software and a computer connection for the Tow Management System. The ASP would then setup accounts with a plurality of towers, limiting each tower to only its own data records. A tower with client software, such as a web browser, may then utilize the computer connection for connecting with the ASP. The tower would then log into the system, the system controlling access via rights given to the login account.

10 The present invention enables a tower's customers to utilize a computer connection to integrate a customer's software system with the tower's system. This enables a customer to send a tow request to the tower and track the request while the vehicle is in the process of being towed, stored, and released or otherwise disposed. The customer would log into the tower's computer. Any information that the customer needs that is stored on the ASP would be routed through the tower's computer. The customer, tower, and ASP may all be connected on the same computer connection, for example the Internet or a PPP network. One such program available for integration with the software of the present invention is the Law Enforcement Tow System ("LETS"), available from eTrak, 3737 Birch Street, Newport Beach, California 92660, Phone 949-567-7071. The LETS program enables a law enforcement agency to send a request over the computer connection to the tow management software and the request as will be described later to be automatically be displayed on the tow



dispatcher's screen. As the tow request is dispatched and subsequent tow activities commence, the tow management software automatically sends notice of the various activities to the LETS system.

In the preferred embodiment, the computer connection utilized by the present invention is the Internet. This facilitates a computer connection for a customer, tower, and ASP who are geographically distant from each other. However, those skilled in the art can appreciate that the software will also function on a local area network or point to point or peer networks.

The tow management software is Java based for superior performance and incorporates modern, state of the art, click and drag features that are well known in the art.

Referring to Figure 1, there is shown a block diagram showing the typical hardware utilized in the preferred embodiment of the present invention. The server **102** is shown with storage **104** for the tow management system database. Typically, the server **102** would be provided by an ASP. However, it is contemplated that some tow companies may prefer to have their own server. A tower computer terminal **106** and a customer computer terminal **108** are connected to each other and the server **102** via a computer connection **110**.

The server **102**, tower computer terminal **106** and customer computer terminal **108** all have communications means for communicating with the computer connection. The various communications means which are well known in the art include, but are not limited to, serial communication, communication via a network interface card, or modem communications.

Access to the server **102** is granted to an account with a username and password. Anyone desiring access to the server **102** must first login. This enables one server **102** to serve a plurality of towers. Similarly, customer access to a tower computer terminal **106** with

a username and password. Even though the customer computer terminal **108** and the server **102** utilize the same computer connection **110**, the customer does not have direct access to the data on the server **102**. If data the customer desires is stored on the server **102**, the customer must first log into the tower computer terminal **106**, the tower computer terminal would log  
5 into the server **102**, the data would be sent from the server **102** to the tower computer terminal **106** which would then send the data to the customer at the customer computer terminal **108**. Thus a plurality of servers **102**, tower computer terminals **106** and customer computer terminals **108** may be connected to the same computer link **110**. Furthermore, since the records stored on server **102** are associated to a tower, the ASP may charge a transaction  
10 fee for each tow transaction.

Figure 2 is a detailed illustration of the main call taking screen **200**. The screen is divided into several sections, each section containing information related to a certain aspect of the towing process. The general section **202** contains general details about the tow request. The vehicle section **204** contains a detailed description of the vehicle. The location section  
15 **206** stores a description of where the vehicle was towed from, whereas the destination section **208** stores the information relative to where the tow ultimately terminated. The motor club section **210** stores information regarding any motorist club coverage that may pay for the tow of any portion of the tow thereof. The owner/interested party section **212** is used to store information regarding who owns the vehicle being towed, or who was operating the vehicle at  
20 the time of the tow.

Approximately one third of the main call taking screen **200** is shared by various sections. This shared section **214** allows one of the underlying sections to be activated by clicking on one of the plurality of tabs at the bottom of shared section **214** with a mouse or

other pointing device.

Tab **216** provides access to the Log Screen (Fig 14), tab **218** to the Storage Screen (Figs 11-13), tab **220** to the Lien Sale Screen (Fig. 9) tab **222** to the Invoice Screen (Fig. 10) and tab **224** provides access to the Search Screen (Fig. 15). Clicking on the corresponding tab  
5 causes the selected screen to appear.

Figure 3 is a detailed view of the general section **202** of the main call screen **200**. The general section stores an account name **302** of who requested the tow, the name of the caller **304** who requested the tow, a call back number **306** and if applicable an extension number **308** for the caller **304**. The reason field **310** requires a selection of pre-entered reasons for why the tow was ordered. The equipment **312** field enables the person handling the data entry  
10 task to specify what equipment is needed for the tow.

Figure 4 is a detailed view of the vehicle section **204** of the main call screen **200**. This section stores a detailed description of the vehicle being towed. The data fields in this section include the vehicle year **402**, the vehicle color **404**, the vehicle manufacturer **406**, the  
15 manufacturer's model **408**, the vehicle's body style **410**, the vehicle license number **412**, the state of registration **414** of the vehicle license number, the vehicle identification number **416** and the vehicle's current odometer reading **418**.

Figure 5 is a detailed view of the location section **206** of the main call screen **200**. This section stores detailed information regarding where the tow was initiated. The fields in  
20 this section include the address **502**, the nearest cross street **504** to the address, a description of any nearby landmarks **506**, the city or locality **508**, state **510** and zip code **512**. Additionally checkbox **514** is checked if the driver of the vehicle is waiting on scene with the vehicle. Optionally, a map may be linked to the system. Pushbutton **516** provides a method

for obtaining a map of the location, if available.

Figure 6 is a detailed view of the destination section **208** of the main call screen **200**. This section stores details about the final destination of the tow. The fields in this section include a business or other name or description **602** for the destination, the destination address **604**, the city or locality **606**, state **608** and zip code **610**. Optionally, an interface to a mapping program may be included. If a mapping program is linked to the tow system, a map of the destination may be displayed by pressing pushbutton **612**.

Figure 7 is a detailed view of the motor club section **210** of the main call screen **200**. If part or all of the cost of a tow will be paid by a motor club, information regarding the motor club and a description of covered services are stored in this section. The data fields for this section include the name **702** of the club, a member number **704** for the covered person, the membership expiration date **706**, the membership program level **708**, the payment cost limit **710**, tow mileage limit **712**, tow mileage rate **714** and if necessary an authorization number **716** provided by the motorist club. The payment cost limit **710** and tow mileage limit **712** fields enable a tower to determine when the services being provided exceed the motor club limits. Therefore a tower may notify a customer when the cost for a tow request will exceed coverage and obtain customer approval prior to accruing those charges. This also facilitates the proper allocation of billing charges.

Figure 8 is a detailed view of the owner/interested parties section **212** of the main call screen **200**. This section stores details regarding either the owner of the vehicle, the person requesting the tow, or the person who will pay for the tow. The fields include bill to **802** which stores the person or party that will pay for the tow, name **804**, address **806**, city **808**, state **810**, zip code **812** phone number **814** with extension **816** of the owner or interested

party. A notes field **818** is provided for entering any free form notes about the tow. The status field **820** lists the current status of the tow request.

Figure 9 shows the data stored when a previously towed vehicle is disposed via a lien sale. The lien sale screen **900** is activated by selecting tab **220** from the main call screen **200**.

5 The lien type **902** stores what type of activity triggered the lien sale. The value **904** field stores the listed value of the vehicle. The Lien dates **906** section of the lien sale screen **900** stores the pertinent dates relative to the sale. The lien dates section **906** stores Lien Sale Start **920** date, DMV Requested **922** date, DMV Received **924**, Lien Notice Sent **926**, Clear Date **928**, and Sold date **930**. The Send Notice to **908** section of the lien sale screen **900** records who was sent a notice regarding the pending lien sale of the vehicle. The fields in the sent notice to **908** section are checkboxes, allowing more than one notification to be stored. The party or parties notified may be the Primary Owner **932** of the vehicle, a Lienholder **934** of the vehicle, an Interested Party 1 **936** of the vehicle and/or another interested party which is stored as Interested Party 2 **938**. Selecting pushbutton **940** allows a user to generate a notice.

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15 The sold to **910** field stores who purchased the vehicle at the lien sale while the sale price **912** field stores the sale price. The comments **914** field allows free form comments regarding the lien sale to be stored.

Figure 10 shows the invoice screen **1000**. This screen is displayed on the shared section **214** when tab **222** is selected. At the top part of screen **1000** are displayed data fields regarding tow services provided for a vehicle. These fields include the Service Destination **1002**, Driver **1004**, Quantity **1006**, price **1008** and amount **1010**. The new service pushbutton **1012** enables a new service to be added for a vehicle. Thus a single tow record can track a multiplicity of tow requests for one vehicle. The delete service pushbutton **1014** causes an

erroneously entered service to be deleted from the system.

The left side of the invoice screen **1000** stores running totals regarding payments and amounts due for a vehicle. The amount total **1016** field stores and displays a running total of all the charges for a vehicle. The tax field **1018** is a running total of all tax that must be paid, for example sales tax, for transactions involving the vehicle. The Discount field **1020** allows for any discounts available to be taken. The grand total **1022** field is a calculated field comprising the running total of the amount total **1016**, plus tax **1018**, minus any discounts **1020**. The cash field **1024** is a running total of all cash paid, the credit card **1026** field is a running total of all credit card payments and the check field **1028** is a running total of all checks paid. The payment total field **1030** is a running total of all payments received for a vehicle. The balance **1032** is a calculated field giving the current balance which is the grand total **1022** minus the payment total **1030**.

The right hand side of the invoice screen **1000** is for entering and storing credit card or check payments. The credit card details stored for a credit card transaction include type of credit card **1034**, card number **1036**, expiration date of credit card **1038**, name of cardholder **1040**, charge authorization code **1042** and the amount paid **1044**. The check details stored when payment is made by a check include the check number **1046**, the authorization number **1048**, and payment amount **1050**.

There are three pushbuttons near the bottom of screen **1000** for handling the posting of transactions. The unpost invoice pushbutton **1052** is used to remove a posted invoice. This may be necessary when a credit card is rejected or a check is returned unpaid. The post invoice pushbutton **1054** is used to post a payment. Finally, the Split Billing pushbutton **1056** enables the splitting of customer invoices.

Clicking on the storage tab **218** will bring up one of the storage screens as shown in Figs. 11-13. FIG 11 is the vehicle storage screen **1100** which would normally be displayed when tab **218** is selected. The time in field **1102** logs the time the vehicle arrived at the storage facility. The lot name **1104** is a name assigned to a storage facility by the tower. The lot section **1106** further delineates the precise location where the vehicle is stored. The Key Tag # field **1108** stores a tag number which can be placed on the vehicle's keys so that the vehicle is not stored with the keys in the ignition. The time out field **1110** logs when the vehicle left the storage facility. The total field **1112** calculates the total amount of time a vehicle was stored at the storage facility. The amount due field **1114** calculates the amount due for a vehicle to be released. The vehicle contents field **1116** is a free form text field enabling the tower to describe the contents inside the vehicle. The vehicle condition field **1118** allows for a free form text description of the vehicle, it enables a tower to note damage to the vehicles and irregularities. The private property impound checkbox **1124** allows a tower to note when a vehicle is towed from private property at the request of the property owner. The Notify Police of PPI pushbutton **1126** enables a tow operator to notify a police department or other law enforcement agency that is utilizing a computerized law enforcement tow system.

For the Notify Police of PPI pushbutton **1126** to work, the law enforcement agency must be using a computerized system such as the Law Enforcement Tow System ("LETS"), available from eTrak, 3737 Birch Street, Newport Beach, California 92660, Phone 949-567-7071. The law enforcement agency must have a computer connection, for example the Internet or a point to point connection, that allows the Tow Management System software to electronically exchange messages. Obviously, the Tower must also be connected to the

computer connection.

If the Police Information pushbutton **1120** is selected, the screen as shown in FIG 12 is displayed. This screen stores data for tows that are ordered by a law enforcement agency. This information may either be filled in manually by a tow data entry operator or electronically. If the police or law enforcement agency is connected to the tower and using a compatible software program, such as the aforementioned LETS program, the tow request may be communicated from the law enforcement computer to the tow computer electronically via the computer connection or over the Internet, causing the fields in the police information screen **1200** as well as other pertinent data fields to automatically be populated. Otherwise, this data is manually entered.

The police information screen **1200** stores information for tows requested by a police or law enforcement agency. Some of the fields in this screen include the Officer's name **1202**, officer's badge number **1204**, case identification number or agency report number **1206** and police beat or zone **1208**. Many police tows are for vehicles with overdue violations, this screen also includes a citation limit exceeded checkbox **1216** to denote when a vehicle has passed a threshold allowing it to be towed based on local law. The Cit. Amount **1210** is the amount of fines or citations that must be paid before the vehicle can be released. The release Doc **1212** field stores a document or file number generated for the release of the vehicle. The Officer Remark **1214** is a free text field allowing a police officer to make miscellaneous notes about the tow. The Close Police Information pushbutton **1220** is used to close this screen and return to the storage screen **1100**.

The police hold pushbutton **1122** provides access to the police hold screen **1300** (FIG. 13). This screen is used to store information when a law enforcement agency



desires to prevent a vehicle from being released. This situation may arise when the law enforcement agency is holding a vehicle for evidentiary value or because evidence is located within the vehicle and the agency desires to obtain a search warrant. The hold until field **1302** can either denote an individual officer, patrol car number, or specialized unit within the law enforcement agency. The hold agency field **1304** may denote either a special unit within a law enforcement agency or the name of the specific agency. The agency pays checkbox **1306** is used to denote when the law enforcement agency will pay for the tow as opposed to the vehicle owner. The Investigative Hold checkbox **1308** is used to warn the tower that the vehicle is not to be released and the tower should not disturb the vehicle or its contents. The hold information field **1310** is a free text field where notes detailing the reason for the hold tow may be stored. When it is appropriate to release the vehicle, the law enforcement agency may remove the hold. The time and date that the hold is removed is stored in the Hold Removed field **1312**. The removed by field **1314** stores the officer or person from the law enforcement agency who authorized the removal of the hold. The remove hold information field **1316** is free text field allowing miscellaneous notes or details about the release of the hold to be stored. Finally, selecting the close police information pushbutton **1318** closes this window and returns to the vehicle storage screen **1100**.

Selecting the log tab **216** from the main call taking screen **200** causes the Times/Mileage screen **1400** to be displayed. This screen tracks various milestones of the towing process. If the tow truck operator is equipped with a mobile data terminal, this data may be entered automatically by the tow truck operator at the mobile data terminal and then transmitted to the Tow Management System which is then updated automatically, without the need of any additional data entry. The milestones stored and displayed on this screen include

when the call was taken **1402** (date and time), when the call was dispatched to a tow truck or other towing equipment was summoned **1404** (date and time), when the tow truck operator accepted the call **1406** (date, time and a current odometer reading of the tow truck), when the tow truck operator actually was enroute to the destination **1408**, the time the truck arrived at the scene **1410** (date, time and a current odometer reading of the tow truck), the time the vehicle was finally loaded onto the truck **1412** (date, time and a current odometer reading of the tow truck), when the tow truck operator actually started the tow **1414** (date, time and a current odometer reading of the tow truck), when the tow truck operator arrived at the destination **1416** (date, time and a current odometer reading of the tow truck) and when the tow truck operator finally completed the tow **1418** (date, time and a current odometer reading of the tow truck).

This screen also stores the tow truck driver **1420** and truck number **1422** that handled the call. The add driver pushbutton **1423** is used to add a new or additional driver to the current active list of available drivers or tow vehicles. If another driver handles the call, the delete pushbutton **1424** can be utilized to remove the original tow driver from the call.

The Est. cost field **1426** allows for cost estimates to be stored. The priority field **1428** is useful in assigning tows when there are a plurality of tows pending. The estimated time that a tow truck driver expects to take in order to arrive at a tow scene can be stored in the ETA field **1430** along with the time **1432** the driver is expected to arrive as well as the date **1434** the driver expects to arrive.

FIG 15 shows an example of the Search screen **1500**. This screen allows for quick searches by vehicle description or call information. The types of searches available with this system are not limited to the fields shown on this screen. The search screen **1500** is divided

into two sections. The upper section **1502** is where the search parameters are entered. The lower section **1504** displays the results of the search.

A search may be made by vehicle license **1506**, Vehicle Identification Number **1508**, Vehicle year of manufacture **1510**, vehicle manufacturer **1512**, vehicle model **1514** and vehicle color **1516**. Additionally, this screen allows for certain call parameters to be searched, such as the call's reference number **1518**, or the customer account **1520**, or purchase order number **1526**. The search may also limit the replies to tows within a certain period defined by the start date **1522** and the end date **1524**. Once the desired parameters are input, selecting the search pushbutton **1528** will cause the results to appear at the bottom section **1504** of the screen **1500**.

Referring to FIG 16, the preferred embodiment of the Dispatch Worksheet screen **1600** is illustrated. This screen is divided into four major sections. The first section **1602** shows vehicles in the process of being towed. The second section **1604** shows vehicles that have outstanding tow requests, but no truck has been assigned. The third section **1606** lists the trucks or tow vehicles currently in operation. Finally the fourth section **1608** shows additional details for a tow request for a vehicle selected either from the first section **1602** or the second section **1604**.

The fourth section **1608** is subdivided into five subsections. The first subsection **1610** shows general call details such as account information and who requested tow, the second subsection **1612** displays a description of the vehicle, the third subsection **1614** displays the location for the tow request, the fourth subsection **1616** displays the tow's destination, and the fifth subsection **1618** displays miscellaneous information about the tow request.

There are several methods that can be utilized for initiating a tow request and having the request appear at the bottom section **1604** of the dispatch worksheet screen **1600**. One method would be to manually create a new record on the dispatch worksheet screen **1600**. A user at the computer could either use the file menu and select, add a new request or a shortcut can be placed on the screen **1600** for the user to utilize to add a new tow request. The vehicle description, location and various other fields would then be manually entered.

An alternative method for initiating a tow request on the bottom section **1604** of screen **1600** would be to utilize a remote computer terminal at a remote location. The remote terminal could be connected by a computer connection, for example a local area network or the Internet. A data entry person at the remote terminal then receives the tow request, enters it into the Tow Management System where it is then caused to appear on the bottom section **1604** of screen **1600** for dispatching. This would allow a plurality of terminals to be used for receiving requests.

For example, a law enforcement agency connected to the tow management system by a computer connection such as the Internet or a point to point or peer network connection, utilizing the aforementioned LETS system could input a tow request into the law enforcement computer system and have that request automatically appear on the bottom section **1604** of screen **1600** as an unassigned tow request. A tow dispatcher then dispatches the tow. This same method may also be used by auto clubs or large volume customers.

There are several ways an unassigned tow request may be assigned to a tow truck. One way would be for the tow dispatcher to contact the tow truck via radio and assign the truck the tow. The dispatcher would then manually move the tow from the bottom section **1604** (unassigned) to the top section **1602** (assigned). This can be done by using a pointing

device such as a mouse to select the unassigned tow, and then select a driver for the tow from the third section **1606**. A second method of manually moving the unassigned request would be to use a pointing device such as a mouse to select the unassigned tow and drag the unassigned tow from the bottom section **1604** and drop into the upper section **1602** (assigned) of the dispatch worksheet screen **1600** and either manually entering a driver or selecting the driver from the third section **1606**. The dispatcher could then use a pull down menu **1624** to change the status of the tow. Each time the dispatcher changes the tow's status, the time and status is logged. Subsequently, the changes in status may be viewed using the Times/Mileage screen **1400** (FIG 14).

Another method is available to assign an unassigned tow to a truck when the truck is equipped with a mobile data terminal. This method contemplates that the dispatcher utilizing a mouse or other similar pointing device selects the tow to be assigned from the bottom section **1604**, then selects a driver from the third section **1606**, and then selects the dispatch pushbutton **1620**. Upon selection of the dispatch pushbutton **1620**, the tow is assigned to the driver selected in the third section **1606**, whereupon the system then automatically moves the unassigned tow request from the bottom section **1604** to the top section **1602**, automatically changes the status of the tow request to dispatched and the change of status is logged into the database, and the tow request is then sent to the tow truck's mobile data terminal.

Yet another method is available to assign an unassigned tow to a truck when the truck or driver is equipped with a pager. This method contemplates that the dispatcher utilizing a mouse or other similar pointing device selects the tow to be assigned from the bottom section **1604**, then selects a driver from the third section **1606**, and then selects the page pushbutton **1622**. Upon selection of the page pushbutton **1622**, the tow is assigned to the driver selected

in the third section **1606**, whereupon the system then automatically moves the unassigned tow request from the bottom section **1604** to the top section **1602**, automatically changes the status of the tow request to dispatched and the change of status is logged into the database, and a page is sent to the pager. Selection of the cancel pushbutton **1626** will cancel the most recent  
5 dispatch or dispatch pending request.

In order to aid a tow dispatcher in locating the closest available tow truck available to handle a tow request, the trucks may be equipped with a global positioning system. The global positioning system may be used in conjunction with a map as shown in FIG 17. The map **1700** not only assists a dispatcher in locating the closest unit to respond, but can be used  
10 to view a truck's activity as well. Once a truck is selected, the travel route window **1701** can be used to show calls that the truck has either already handled, is currently handling, or are waiting for service. These calls are provided in a list **1702** format. A suggested or expected path for the truck to travel can be calculated using the calculate path pushbutton **1704**. The travel report pushbutton **1706** will display historical data. The autosort pushbutton **1708** is  
15 used to automatically sort all available units to aid the dispatcher in locating the closest unit to respond. The clear all **1716** and clear path **1710** pushbuttons cancels either all activities or the most recently assigned activity respectively for the most recently selected truck. In the lower right side of the travel route window **1701** is a box entitled Search Area, containing a two radio button fields that control the search area for locating nearby tow trucks. The normal  
20 **1712** radio button searches for tow trucks within a pre-defined vicinity of the tow request, the large **1714** radio button will search for tow trucks inside and outside of the pre-defined vicinity that the normal **1712** radio button is set to search for.

FIG 18 is an example of the customer information screen **1800**. The customer information screen **1800** stores various details about a customer and various services available to that customer. The details of a customer record **1804** may be displayed by selecting from a customer list **1802**. After a customer record is displayed, either the services offered the customer or motor club details may be displayed or edited.

The services screen **1810** is displayed after the services pushbutton **1806** is selected. The services screen **1810** allows the various services for a customer to be setup. The Load Defaults **1828** pushbutton allows the Services Offered list to be loaded with default customer services which can be setup by a system administrator. The New Service **1812** pushbutton allows a new service to be associated with a customer while the Delete Service **1814** pushbutton removes a service from the customer profile. The Close **1816** pushbutton closes the services screen **1810**.

When the motor club pushbutton **1808** is selected a subscreen similar to Fig 7 for entering various motor club details such as motor club number, authorization number, mileage and cost limits is activated. This enables motor club information to be associated with a customer.

The left section of the screen **1822** has tree menus for administrative setup. Within the setup tree **1818** an administrative user may select setup defaults and enter data for companies, customers, trucks, employees, payment processing and lien sales.

Within Company Setup, a plurality of information is available for entry such as Company Profile, which provides contact, address, and tracking details of the company. Group Information regarding any grouping within the company, Security which creates and manages user accounts by selecting which parts of the system each user has access to,

Registration which is used to authorize and activate the installed copy of TMS and finally the System Defaults which enable limits to be placed on each element described on each screen or function.

Similarly, the Customers, Trucks and Employees section enable the user to define each element used by the system such as name, address, payment terms, discounts etc. Employee information is used to set up driver information including license number, commission or hourly rate payments, hire and termination dates etc.

Truck Setup provides all information associated with the tow vehicles used such as Class, Description, Equipment type, License number, Registration dates, Permit numbers, VIN number, In or Out of Service information and code.

Payment processing allows different types of payment information to be posted to customer accounts such as add new payment, create credit memo, pay credit memo and a general search function by customer name and/or number.

The Reporting function is divided into two sections: Accounting and Management. The Accounting section contains standard reports such as Account Summary, Daily Revenue, Driver Commission, Invoice Register, and Sales Analysis. The Management section also contains standard reports such as Call Log, Cancelled Calls, Customer List, Truck List, Lot Inventory, Released Vehicle, and Employee Listing.

The Lien Sale Processing section activates the Lien Generation functions such as the initiation of Lien Sale by vehicle, start dates, and customer information. Additionally, Lien Sale Reports, Lien Letters and Lien Status information is generated from this section.

FIG 19 shows an example of the employee information screen **1900**. The employee information is displayed by selecting an employee from the employee list **1902**. While this



screen displays standard employee information such as employee name **1904**, employee address **1910**, employee city **1912**, employee state **1914**, employee zip **1916**, employee phone number **1918**, employee pager number **1920** and employee e-mail **1922**. Additionally, the employee screen **1900** also stores employee operator license number **1906** and the operator license expiration date **1908**, enabling a tow operator to be notified when an employee's license is about to or has expired. The employee screen also stored the employee's birth daet **1924**, the hire date **1926**, termination date **1928** and a commission rate **1930**. The new **1932** pushbutton allows entry of a new employee. The delete **1934** pushbutton deletes an employee from the database. The save **1936** pushbutton saves the information currently displayed on the screen **1900**.

FIG 20 is an example of a payment received screen **2000**. This screen is used to log the payment of invoices. A user selects the new pushbutton **2022** to enter a new payment. Then the user selects an account **2006** which causes a list of invoices due **2002** to be displayed. By using the pay oldest first pushbutton **2004**, a single payment may be split over a plurality of due invoices, with priority given based on the age of the invoice. There are also fields for check number **2008**, reference number **2010**, and amount **2012**. The applied **2014** and remaining **2016** fields enable a payment of a specific amount to an individual invoice. Additionally account balances are automatically calculated and updated. The before payment field **2018** shows the previous account balance before the last payment was received, the after payment field **2020**.

To split an invoice, first the account **2006** is selected. Then the check number **2008**, reference number **2010** and amount **2012** are input. The applied **2014** and remaining **2016** fields then track how much of the check has been distributed among the various invoices

owed by the customer and automatically updated. Initially, upon first entering a check, the applied field **2014** would have a zero balance while the remaining field **2016** would be equal to the amount of the check or payment. At this point the user has the option of paying the oldest invoice first by pressing the pay oldest first pushbutton **2004** or may select an invoice from the list **2002**. After selecting an invoice to pay, the user then may elect an amount to pay on that specific invoice. After the user has decided how much of the payment to apply to the selected invoice, the applied field **2014** is updated to denote how much of the payment has been applied to invoices while the remaining field **2016** is automatically updated to reflect if there are additional funds left after the payment. If there are funds left, then the process of selecting an invoice, and an amount to pay on the selected invoice is repeated until remaining funds stored in the remaining field **2014** is zero or all of the invoices are paid. If all of the customer's invoices are paid and the remaining field is non-zero, the system will store the credit for use with future invoices.

When the user has completed filling out the data fields, the save pushbutton **2026** then posts the transaction.

The void previous pushbutton **2024** is used when a previously posted payment is rejected. This can occur when a credit card is rejected or a check is rejected for non-sufficient funds or is written on a closed account. The user highlights the rejected payment selects the void previous pushbutton **2024**. The payment is then automatically deleted and the account balance is recalculated.

Figure 21 is an example of the security configuration screen **2100**. The security configuration screen **2100** enables the security for each individual or employee to be specifically tailored to that persons access needs. In order to access the features of this

screen, a user must first login with their name in the name field **2102** and password in the password field **2104**. Once logged in, new users may be added to the system by selecting the new pushbutton **2142**, users may be removed by selecting the delete pushbutton **2144** or a user's security parameters may be modified by selecting a user from the name list **2106**.

5       After selecting the type of transaction, the user is presented with a screen divided into three sections. The first section, the call worksheet section **2108**, enables security access to be set for the various screens associated with the call worksheet screen (see FIG 2). The second section, the dispatch worksheet section **2110**, enables security access to be controlled for the various sections of the dispatch worksheet screen (see FIG 16), and the third section, the administrative wrksht **2112** enables access to be controlled for miscellaneous administrative screens. When a check is inserted into a checkbox it means access for that field has been enabled. If there is no check in the checkbox, the system will not allow access to the associated screen or field.

10       Referring to the call worksheet section **2108**, a plurality of checkboxes are displayed that enable access to be controlled for the various screens associated with the call worksheet screen (FIG 2). The call taken checkbox **2114** determines if the user will have access to the log screen **1400** as shown in FIG 14. The storage checkbox **2116** control access to the vehicle storage screen **1100** (FIG 11) as well as the police information screen **1200** and the police hold screen **1300**. The lien sale checkbox **2118** controls access to the lien sale screen **900**.

15       While the invoicing checkbox **2120** controls access to the invoice screen **1000**, the update invoice checkbox **2122** determines if the user may make edits to the invoice screen **1000**. The search checkbox **2124** controls access to the search screen **1500**.

The dispatch worksheet section **2110** controls access to various parts of the dispatch screen **1600**. The dispatch checkbox **2126** determines if a user can access the dispatch screen **1600**. If a user can access the dispatch screen **1600** then the assign drivers checkbox **2128** and manage drivers checkbox **2130** determine if that user can assign a tow request to a driver and if the user can insert or remove drivers from the third section **1606** of screen **1600** respectively.

The administrative wrksht section **2112** section controls access to the various system administrative functions. The setup checkbox **2132** determines whether the user can change the system setup that allows access to tow companies setup functions, services, contained within the administrative wrksht **2112** section. The maintenance checkbox **2134** determines whether the user can modify any of the previously defined functions.

The report checkbox **2136** determines whether the user has access to the various system reports. Reports are divided into two sections: Accounting and Management. The Accounting section contains 14 standard reports such as Account Summary, Daily Revenue, Driver commission, Invoice Register, and Sales Analysis. The Management section also contains 14 standard reports such as Call Log, Cancelled Calls, Customer List, Truck List, Lot Inventory, Released Vehicle, and Employee Listing.

The Payment Received checkbox **2138** determines whether the user can access the payment received screen **2000**.

Finally, the archive records checkbox **2140** determines whether the user can take old records off line and archive them separately.

Selecting the save **2146** pushbutton will save any changes made to the call worksheet **2108**, the dispatch worksheet **2110** or the administration wrksht **2112**.

Although the invention has been shown and described with respect to a certain preferred embodiment, it is obvious that equivalent alterations and modifications will occur to others skilled in the art upon the reading and understanding of this specification. The present invention includes all such equivalent alterations and modifications and is limited only by the  
5 scope of the following claims.

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